

THE AQUARIUM BULLETIN

AUGUST 1917

FIVE CENTS



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The Brooklyn Aquarium Society, Inc.

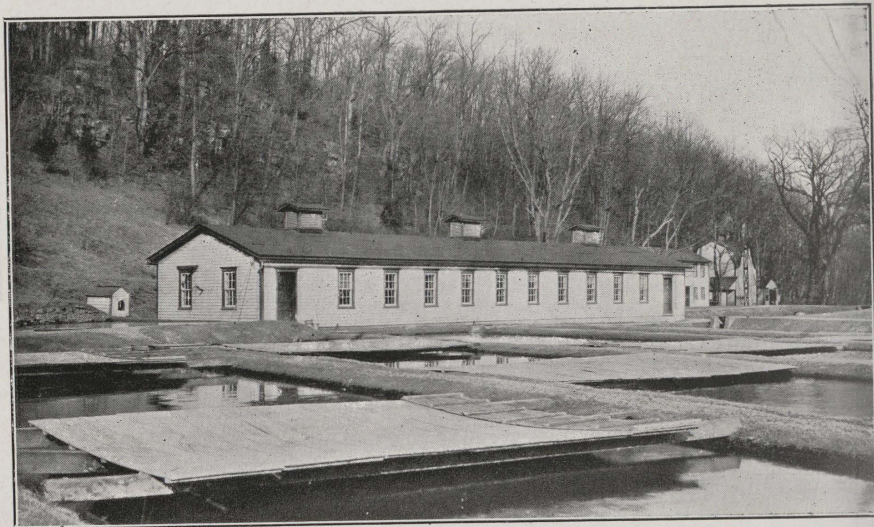
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BROOKLYN

NEW YORK



Brooktrout Fish Hatchery of Colonel Trexler

By JOSEPH FROEHLICH

"The Lehigh Fishery" at Allentown, Pa., is devoted entirely to raising brooktrout. It is located on the side of a hill, from which springs an abundance of pure, cold water. In fact, the flow is so great that the water cannot freeze in the winter time. It is collected in so-called feeder-pools and thence flows into troughs in the breeding house, from which it is afterward conducted into the large out-of-door concrete pools, shown in the illustration, there being many more than are pictured.

The product of this hatchery is about 20,000 pounds annually and when one considers that one pound will average three to four fish, the result is rather interesting.

The plant consists of a breeding house, containing forty-six wooden troughs, each 16 feet long, 18 inches wide and 6 inches deep. The water in these tanks is maintained at about three inches, there being about one

inch of gravel in the bottoms of the tanks.

The water enters each tank with a strong flow, the overflow at the opposite end being protected by a screen to prevent the young from being washed away. One such tank will hold 30,000 fish in the early stage of breeding, without discomfort to the little creatures. When the fish grow to about 1½ inches in length they are transferred to the out-door pools, of which there are twenty, each one being 75 feet long, 15 feet wide, and all are well supplied with running water, without which the trout could not exist.

All spawning and fertilizing of spawn is done artificially. The female fish are stripped of the eggs and the male fish of the milt. It would appear at first thought that these operations would kill both the parent fish, yet but few of them succumb. After the operation they are

placed in a solution of permanganate of potash, which restores them.

The fertilized eggs are then thoroughly washed. A three-year old female fish, twelve inches long, will average 1500 eggs. These eggs are about one-eighth inch in diameter and are of a clear water color, but show the fertilization within a day or two.

One quart (about 13,000 eggs) is placed on a screen 18 inches by 15 inches in size, and having meshes measuring ⅛ by ½ inch, the infertile eggs being removed.

Within 40 to 50 days after the eggs begin to hatch the young fry slip through the meshes of the screen into the trough below, and so on until they are placed in the outdoor pools.

The young can live about one month from the contents of the yolk-sac, after which they are fed on the entrails of sheep, finely ground up. This food is used almost exclusively, and for the larger fish it is of course ground coarser.

A very ingenious feeding device is employed at each pool. A crockery jar, holding about one gallon of the food has a cross hole near the bottom

in which reciprocates a wooden piston about ¾ inch in diameter, fitting but loosely in the hole. The extent of movement of the piston is about 3 inches and is attained by a crank located on the shaft of a revolving water-wheel, which is operated by the inflowing water at the upper end of the pools. This apparatus is placed 2 feet above the water level and the outward movement of the piston carries some of the food with it, whereas by the inward movement it is scraped off by the wall of the hole, dropping into the water below, where it is eagerly snapped up by the fish. By the use of this method the fish are compelled to feed gradually and all food is thus consumed.

Although practically all fanciers state that as an aquarium fish the brook trout is an impossibility, it is known that this has been accomplished by a European fancier with great success.

(N. B. The experiences of this fancier will be told in an early issue of THE AQUARIUM BULLETIN.—Ed.)

The Eel-Pout

By JOHN TREADWELL NICHOLS

Most fishes lay eggs, but here and there one finds unrelated species which bring forth their young alive. Such are the eel-pouts, *Zoarces*. The American Eel-pout, *Zoarces anguillar*, is an unattractive yellowish fish caught plentifully on the fishing-banks outside New York where it is known as "conger eel." The true conger eel is comparatively rare in this vicinity where it is called "sea eel."

The eel-pout is tenacious of life, and we have seen the European species, *Zoarces viviparus*, known as

viviparous blenny, exposed for sale alive in the Copenhagen market. This last June "conger eels" taken on a trip of the "Taurus" to Cholera Bank were saved for food, whereas numerous individuals caught from that fishing steamer on one of the writer's rare trips to the banks some years ago in December, were disregarded. Perhaps this indicates a more intelligent and less wasteful attitude toward local fishery products than existed formerly.

Sixth Annual Exhibition

The members and friends of The Brooklyn Aquarium Society, Inc., are now centering all of their interest around the Society's Sixth Annual Exhibition which will be held from Thursday to Sunday, September 20 to 23 inclusive, in the Brooklyn Museum of the Brooklyn Institute of Arts and Sciences, Eastern Parkway at Franklin Avenue, Brooklyn.

Last year some 250 tanks of fish were shown and it is very probable that that number will be greatly exceeded this year. More individual exhibits will be made than in the past due to the success attained by the younger members in breeding and raising fish of ichthyology. Several of our leading breeders have made the admission that competition will be unusually keen and that the races for prizes will be close and interesting.

Starting with the common, long-bodied, red goldfish, years of careful and selective breeding have produced a number of truly wonderful varieties, some of which bear little or no resemblance to the common ancestor. Among the varieties to be shown will be lion-heads, orandas, the beautiful black Moor, the rare blue and the attractive mottled transparent-scaled fish, comets, shubunkins and several others.

Smaller in size but no less interesting are the tropical and other exotic fishes. Contrary to the understanding of most people not acquainted with aquarium fishes, some fish bear live young. Many brightly colored specimens representing several families of live-bearing fishes will be exhibited; there, also, will be found the labyrinth fishes, those curious little creatures that have been

supplied with a double breathing apparatus by kind Providence which enables them to live out of water for a considerable time if kept damp and that build nests of air bubbles on the surface of the water in which the eggs are deposited and the young hatched; the mouth-breeders, the considerate female of which holds the eggs in her mouth until they hatch and then continues holding the young in her mouth until they are old enough to care for themselves, and many other curious, beautiful and interesting native and foreign fish.

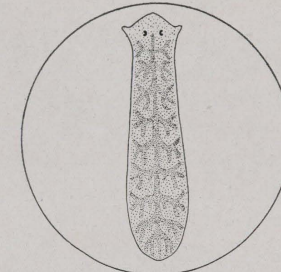
In addition to the display of fishes, an excellent exhibit of aquatic and semi-aquatic plants will be shown. Rare and beautiful decorative plants and water lilies in full bloom will delight the eye of the plant-lover who, even though not particularly interested in fishes, will find this portion of the Exhibition well worth the time consumed in viewing it.

There will be space for all and every reasonable precaution will be taken during the Exhibition to guard against loss. This event is the biggest of its kind in the country, and should substantially repay the exhibitor for his patronage.

The Exhibition will be open to the public from 9 A. M. to 6 P. M. on Thursday, Friday and Saturday and from 2 to 6 P. M. on Sunday. The Museum will also be open Thursday evening from 7.30 to 9.45 at which time the members of the Society will celebrate Society Night or Get Together Night.

Further information may be obtained from C. H. Chapin, Secretary, 479a Quincy Street, Brooklyn, N. Y.

WHAT THE MICROSCOPE SHOWS



By H. A. VAN COTT

The flatworm Planaria, a larger and higher organized animal than any of those previously described, resembles them only in its ciliated exterior. It is a multicellular animal, flat in form, as the name suggests, and grows to an inch in length when fully extended.

The Planaria is a common inhabitant of our aquariums, hiding during daylight and roaming forth at night in search of food. They move around on the glass and plants singly as a rule, but may often be found in greater or less numbers swarming in a dark corner.

This animal is worm-like in appearance, while its actions in gliding over the surface of the glass by means of its vibratile cilia, or along the surface-film, bottom up, turning and twisting, reminds one of the snail and the two slight horn-like projections at the head add to this impression.

The "eye-spots" are distinctly noticeable as two crescent shaped spots on the head. The mouth is

located in the central part of the underside of the body and is in the form of a short tube. The animal is normally a mottled white, soft-looking little creature which changes color with every full meal, when the much branched alimentary canal shows through the transparent skin in a striking decorative pattern, colored according to the color of the food therein.

They multiply both by eggs, which are little brownish capsules attached by a short stalk to a plant or a pebble on the bottom, and by transverse division of the body. In the reproduction by division the animal slowly divides in a transverse line at a point directly behind the mouth. The head end promptly grows a new tail and the tail end forms a new head.

The Planaria are harmless little creatures and form an added interest to our aquaria. Certain fish will readily feed on them, but the majority of aquarium fish will not molest them.

The ANNUAL NUMBER OF THE AQUARIUM BULLETIN—the September issue, will be unique and beautiful. It will contain photographic reproductions of some of the finest prize winning goldfish ever

bred, as well as a series of articles for aquarists, advanced and novice.

Owing to the very heavy demand already made for same, it will be well to order your copy now and avoid disappointment.

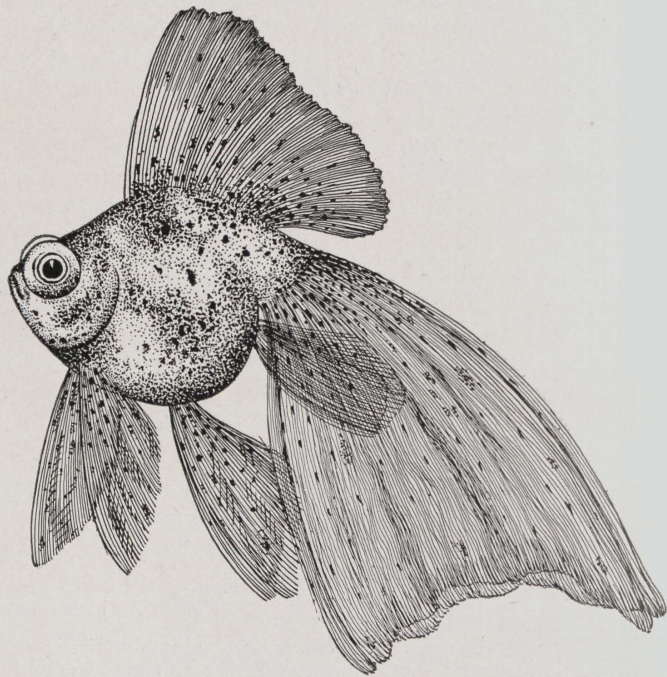
Studying Nature from Pictures

A small child will learn from a picture book what hours of verbal instruction would fail to impress. Being small children, all of us, when it comes to Nature, we too study far better from illustrations, true to life, than from fact, no matter how much interested.

When such facts are picturized by

Figure 1 shows the ideal type of Calico Vailtail Telescope goldfish, which has been produced by selective breeding in this country. Many other similar species are illustrated in detail and fully described.

But little is known to most persons about the little sea-horse, which mythology has encircled with tales



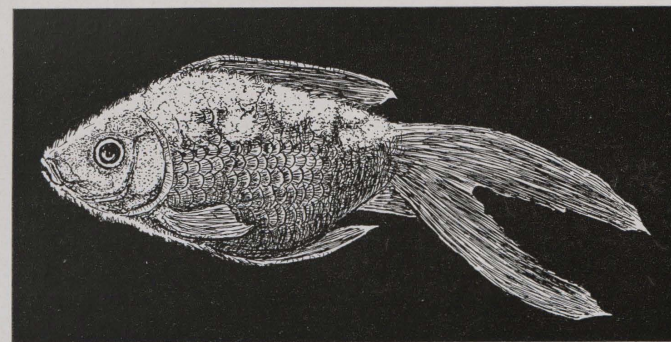
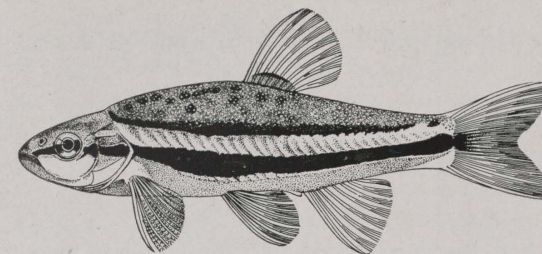
a well known and long successful aquarist of note, they cannot fail to attract.

There has long been a demand for such an illustrated story and it has been well met.

The interesting little dace, a beautiful aquarium fish, little appreciated as yet, is shown in illustration No. 2.

galore. Yet it has been and can be maintained and bred under perfect conditions in captivity. It is shown in Figure 3.

Most fanciers in their early days kill more goldfish with kindness and over attention than they save. If they but knew a sick fish when they had one, most of this over-anxiety



would be avoided. Figure 4 shows a diseased fish in the characteristic attitude assumed.

All these and many other illustrations, appear in Mr. Wm. T. Innes' complete volume of instruction "Goldfish Varieties and Tropical Aquarium Fishes," through whose

courtesy we are enabled to present these illustrations.

THE BULLETIN is prepared to supply this book with one full year's subscription on receipt of \$3.00. Old subscribers may continue present subscription for another year on the above basis.

The Largest Live-Bearing Fish

By A. E. SCHIERBAUM.

The scares and accidents pursuant to the invasion of New York Harbor Waters last season by a species of "So-called" Man-eating Shark bring to mind the fact that Sharks, although a saltwater inhabitant, are the largest live bearing fish.

It is always a source of high interest, when on a fishing excursion, some individual catches a big shark and after disintegrating the fish, to note the curiosity and amazement of the uninitiated at seeing live young taken from the body. These are sometimes also taken from the gullet or stomach of the grown fish due to the fact that in times of danger the adult will swallow the young and later disgorge them when deemed safe to do so.

There are two species, generally speaking—The "Horned" and the "Smooth" Dogfish. The former brings forth its young alive, a litter, each baby shark provided with a yolk-sac for sustenance during the first few days of its independent existence.

The other is more like a bird than a fish, laying eggs which, divested of the shells, bear a close resemblance to the yolks of a hen's eggs. The shells in question are rectangular in shape with long tendrill-like processes extending from the four corners, to anchor the egg to seaweeds on the bottom.

Sharks are the subject of many discussions, not always complimentary. The State of Maine has appropriated money in an effort to exterminate "Dogfish" which appellation covers divers breeds of sharks infesting those waters to the

detriment of fishing and damage of nets, whereas other states are working along similar lines while the advocated and accepted rule among anglers is to destroy this predatory species wherever possible.

Large sharks are surface feeders and subsist principally on Moss-bunkers (also known as Menhaden). The latter travel in immense schools and are so large that oftentimes when the seine net encloses one of them the men hawling the net cannot lift it out of the water but are compelled to dip into the pocket formed with smaller nets until the amount therein can be better handled.

These schools of "Bunkers" are at times half a mile in diameter at the narrowest width and ten to twelve feet deep a slow moving mass, and from a distance appears as though a large quantity of dull red dye had been poured into the ocean. Suddenly the edges of the dark red cloud are broken and scattered while here and there are seen flashes of silver, iridescent and scintillating in the sunlight and throwing about flashing jewels of sparkling spray, interspersed by large, dark blue, lazily moving dorsal fins, as the unfortunate "Bunker" is forced to leap and plunge almost beyond its strength in the effort to escape extinction by its marauding enemies the rapacious shark and cruel Bluefish, and where everything was peaceful but a moment before is quickly transformed into a seething, boiling turmoil.

The consensus of opinion among many men who follow the sea for pleasure and also for business is that

the scarcity of "Bunker" food has last year caused the Sharks to drift further from their regular migrations bringing them to inland waters.

Last October a giant shark twelve feet long was found dead on North Point Beach, Barnegat Bay Inlet, N. J. from a sort of cancer or tail rot and all the salt in the ocean did not prevent the disease from becoming fatal.

Rubbernecking curiosity on the part of natives led to an examination of the contents of its stomach and there was found within parts of fishing lines, sinkers, hooks, a small piece of the end of fishing rod, a chicken's head as well as a pair of feet, several partly digested fish and a small bucket.

Consternation runs rampant on boats lying at the various fishing banks when the Sea-bass and Porgies are unnumbered and a number of mackerel sharks put in an appearance. The angler will be joyfully reeling in his prize when suddenly a heavy solid shock will be felt along the line and the next motion is a constant, overpowering drag. It is useless to endeavor to save any portion of the tackle. At times the shark will cleanly bite the fish in two and then again will swallow tackle and all.

In California Shark fishing is done on a somewhat sure basis. About a dozen people go down to the beach and each one throws out a rope with a hook and chain and, of course, bait. When a Big One is hooked the "lucky" owner of the line shouts out and everyone else runs over, takes hold of the rope and with a swinging chorus they go running from the water and out comes Mr. Shark thrashing ignominiously and futile in

the face of such opposition.

The members of the United Anglers League, Inc., of New York intend to refer in the future to those various species of small sharks or Dogfish inhabiting adjacent waters as Grayfish as the majority have found them desirable as a food supply. This title has not been given for the purpose of deception but to get rid of a designation that has more than anything else created prejudice against it. There is a large amount of Protein contained in the Flesh of the Grayfish. They are palatable and a mixture of prepared "fish flour" has increased noticeably the total amount of milk given by different cows, although this has not affected the butcher fat, whereas the same ingredient has had excellent results with laying chickens.

Not many years ago there was a strong prejudice against the Grayfish in England as exists here to-day. Since then, however, it has assumed importance over there as a food fish, more than 6,000,000 pounds being sold in 1915.

Very recently Brooklyn was served with a new water supply from the Catskill aqueduct.

About this time several breeders incurred severe losses and laid this to the change of water.

A careful analysis of this water has been made, and while in chemical content it differs from the various supplies heretofore served to Brooklyn, it contains nothing whatever which could cause the trouble, and we are inclined to think therefore, that these losses have been due to other reasons.

An Interesting Experience

Mr. C. H. Chapin, of Brooklyn, relates an interesting happening during the summer of 1916, as follows:

"I had a pair of shunbunkins, the male of which was pretty well spotted with black. During the summer the balanced tank in which I kept them began leaking so badly, that it became necessary to remove them in order to make repairs, and having nothing else at hand large enough to serve the purpose, I made use of the bath tub, a white porcelain one (no, wife was not home at the time). Three or four days later I noticed that the fish seemed changed. They appeared to be in perfect health and were as active as ever, but their color had changed to a washed-out pink, and closer examination showed that the spots on the male, which were black originally, presented a rather pearly appearance. As the tub was in a darker location than the tank, thus precluding the possibility of the sun having caused the change, I attributed this loss of color to fright due to the fish having been placed in unaccustomed surroundings.

As I was home only a few minutes each day, it was about a month before I again had my balanced tank in condition, in which time it would seem that the fish should have become accustomed to the tub, but none of their original color had returned. Nearly all of it did return however, in about three or four days after I had put them back in the tank. Wishing to carry the experiment a little further, I again put the fish in the tub and again they lost their color, only to regain it again when returned to the balanced tank. The color reappeared gradually, and in three

days nearly all of it had returned, after which no perceptible change took place. At this writing, the fish are not as brilliantly colored as they were before being put in the tub. The bodies appear to be slightly faded and the solid deep black spots on the male have the appearance of having been partly rubbed off. Whether they will regain all of their color eventually remains to be seen.

A year or so ago, an article written by a fish fancier well known to Brooklynites, appeared in "Pet Stock World," in which the author stated that if young goldfish were kept in cypress tanks having a black interior, the color of the fish would be improved considerably and the results of my experience seem to indicate that the color of the surroundings may affect, if only to a slight extent, the color of the fish. Other fanciers to whom I have spoken, say they do not think the surrounding color affects the body color, basing their contention on the statement that if the coloring matter is not in the fish originally, the surroundings cannot strengthen the color any. This, also, seems a reasonable argument.

If the whiteness of the tub did cause the colors on my fish to change so greatly, just what change was produced in the coloring matter in the fish? And if white surroundings cause the color to fade, what affect would other colors have on the color of the fish?

The opinions of the other members of the Society would be interesting.

The BULLETIN would be glad to receive advices from fanciers who may have knowledge or experience in this direction, and will gladly publish same.

Marine Aquaria

BY JOHN DEBUS.

If artistically arranged, a marine, or salt-water, aquarium is a very pleasing sight.

For those of us living near the ocean or some of its bays or inlets, these aquaria are easily established and easily maintained. Many excellent specimens have been found at Sheepshead Bay (Brooklyn, N. Y.) and its vicinity.

The little sea-anemone (*Actinia*) and various kinds of crabs may be found gathered about the rocks and in little pools along the shore when the tide is out. Salt-water snails, mussels, star-fish, shrimp, etc. may also be introduced at pleasure.

The plants most suitable for this kind of aquaria are the small seaweeds to be found in coves and crevices of rock all along the shore. When gathering them, a small piece of the rock to which they grow should be chipped off and the plants placed in the aquarium without being detached or bruised. Sea-lettuce is also very effective though, perhaps, not so easily obtained. Of course the most pleasing and satisfactory tanks are those in which plants and rock work have been most picturesquely arranged.

A desirable food for these little salt-water residents is the soft part of an oyster or clam chopped fine and fed in small portions every other day. Evaporation, in reasonable amounts, may be supplied with fresh city water.

The necessity for cleanliness is particularly emphasized in containers used for carrying fish. A recent costly experience in this direction has been related by a fancier, who used a bottle containing chemicals, which

High Cost of Living

When THE BULLETIN was a little four-page leaflet, with practically no subscribers, and published almost solely in the interest of members, advertising and subscription rates were instituted to cover the cost of this publication.

Since that time there has been a very substantial increase in the cost of paper, printing, etc., and yet there has been no advance whatever in these rates, nor in the subscription price, which is 50c per year.

During this time, the paper has increased in size between 600 and 800 per cent., and has several thousand readers.

The publication is a somewhat different one. While it is owned by the Society its affairs, finances, etc., are independent. No one receives compensation for their labors, and all profits are promptly turned back for the betterment and enlargement of the publication. It is worthy of your support, and worth far more than is asked for it.

It is not published for The Brooklyn Aquarium Society, but by the Society for all fanciers. Less than 5% of its subscribers are Brooklyn Society members. *Watch it grow.*

For the future, extensive plans have been made, and as the number of copies is necessarily limited, it is well to arrange for yours in advance.

he believed had been thoroughly cleaned by rinsing in hot water, etc., and in transporting some valuable tropicals therein he discovered to his sorrow and loss the next morning that all had been poisoned and died.

The Brooklyn Aquarium Society, Inc.

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On Sunday, June 24th, the B. A. S. held its second outing of the season. The destination was Rockland Lake and the weather was ideal. Among others who attended were Mr. and Mrs. Titus, Mr. and Mrs. A. L. Wright and daughter, Miss Kroder, Mr. and Mrs. Steensgard, Mr. J. J. Hoare, Mr. C. J. Heede, Mr. and Mrs. Bradshaw and daughter, Mr. C. J. Donovan, Mr. and Mrs. Jos. Froehlich and Mr. Jasper.

After partaking of refreshments, boats were requisitioned and specimens of all kinds were collected.

Another outing to the same lake will be held on Sunday, September 9, 1917, to which all interested persons are invited, whether or not they are members of the Society. Party will leave via West Shore Road, foot of Cortlandt Street at 10.30 A. M. Excursion fare 85c.

One of the well known fanciers in Brooklyn recently adopted the plan of using steel-wool for cleaning algae, etc., from the sides of his tanks and found that it did the work well. None the less it was a costly experience, but as all experience must be bought, he has since charged it to profit and loss.

Not long after some valuable lionheads, which were housed in his tank seemed to fail and ultimately died. There being no especial reason apparent for their demise, an autopsy was decided upon and when the gills were opened a number of little fine specks were observed. Careful examination under the microscope showed them to be particles of this same steel wool which had been taken in by the fish, imbedded themselves in the gills and thus caused the trouble. It acted precisely as does ground glass in the animal system.

Chinese Method of Catching Fish

BY JOHN DEBUS.

Among the many methods used by the Chinese in their goldfish culture is the following one for catching goldfish in ponds which was practiced by them some twenty-five years ago.

Cocculus Indicus is pulverized and mixed with dough and then scattered broadcast over the pond as one might sow seed. The fish seize it with great avidity and immediately become so intoxicated that they turn completely over and lie on their backs on the surface of the water where they may be gathered in by dozens. When placed in a clean tub of pure water, they revive very quickly and become as lively and healthy as ever.

(Come again, John)

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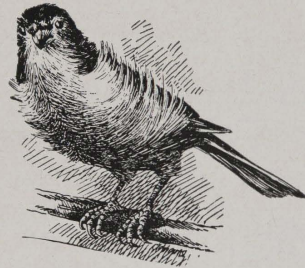
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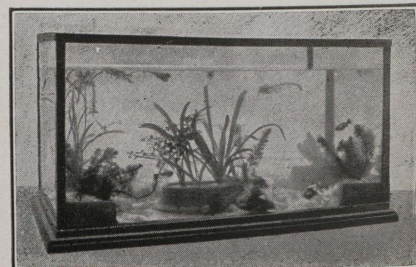
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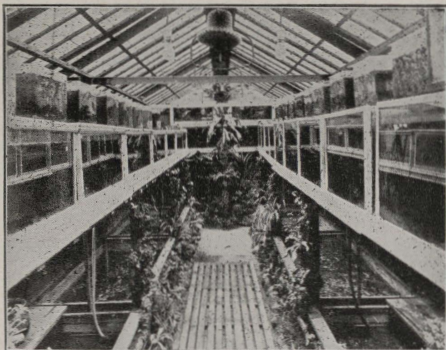


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